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EXAMINER	
LANGMAN, JONATHAN C	

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1784	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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ADVISORY ACTION

On page 2 of the remarks, applicant argues that Kanel et al. teach a plurality of Ge quantum dots in an SI matrix, and that this is not equivalent to a Ge layer as claimed.

Kanel et al. may teach forming monolayers of Ge, however Kanel et al. teach that these monolayers are heat treated to form islands or dots before the backside silicide layer is formed (pg s228, col. 1).

It is the Examiners position that these islands or dots read on the claimed “layer”. The specification never defines “layer” to mean covering the entire surface. Kanel’s teaching of a Ge quantum dot, is a structure that takes up three dimensions, and therefore in its broadest context is at least a discrete “layer”.

Applicant further argues that Ge dots capped with Si have a compressive strain, whereas the stress engineering layer recited in the instant claims increases a tensile strain of a Ge or Ge containing layer.

In regards to Kanel, it is the examiners position that the backside silicide layer will inherently “increase the tensile strain" of the Ge or Ge containing layer. The claim does not require that the Ge or Ge containing layer is tensile strained. The claim only requires that the silicide “increases tensile strain” in the Ge layer, which is functional language. The applicant has failed to persuasively argue or provide evidence to show that the Ge layer of Kanel, with a backside silicide layer is not more tensile strained (less compressively strained) than Kanel’s structure without the backside silicide layer, and therefore the rejections are maintained.

On page 3 of the remarks, applicant argues that Kanel et al. in view of Kubler or Sutter do not teach the claimed characteristics for much of the same reasons argued above and on page 2 of the remarks. These arguments are traversed for much of the same reasons mentioned above in regards to Kanel et al.

On page 4 of the remarks, applicant argues Selvakumar in view of Kanel as evidenced by Meyer et al., do not teach the functional equivalency of aluminum backside ohmic contacts and cobalt silicide ohmic contacts.

First the examiner would like to clarify the record. The examiner previously stated that Kanel does not refer to their CoSi2 layer as a backside ohmic contact, and relied on Meyer as evidence to show that $CoSi_2$ layers are ohmic contacts. However, on page s227, col. 2, Kanel teaches "In order to ensure ohmic collector contacts, 100-200 angstrom thick $CoSi_2$ films were deposited on the entire backside of the (substrates)".

The examiner does not agree with the applicant's position that the examiner has not shown the functional equivalency of Aluminum backside ohmic contacts, and CoSi2 ohmic backside contacts. Aluminum and CoSi2 both function as backside ohmic contacts for diodes as described in Selvakumar and Kanel. Therefore these are known and functionally equivalent films, in that they both provide the same function (ohmic contacts on the backside of diodes). Therefore the applicant's arguments are not found persuasive and the rejections are maintained.

Applicant further argues “In addition, none of these references discloses a stress engineering layer that increases a tensile strain of a layer disposed on an opposite side of the substrate as recited in the instant claims”. However it is the examiners position that Selvakumar modified by Kanel, will inherently possess a stress engineering layer that increases a tensile strain of a layer disposed on an opposite side of a substrate, and the applicant has failed to provide evidence of the contrary.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JONATHAN C. LANGMAN whose telephone number is (571)272-4811. The examiner can normally be reached on Mon-Thurs 8:00 am - 6:30 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Jennifer McNeil can be reached on 571-272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JCL

/Jennifer C McNeil/
Supervisory Patent Examiner, Art Unit 1784